CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/RM/W.No.09/CSR.10/159i/Cement/2016-17 Date: 03.10.2016

TEST REPORT ON CEMENT

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of Work	:	Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	:	Cement
Sample Received on	:	01.10.2016
Period of Testing	:	01.10.2016 to 03.10.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1992(RA-2014)	29.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1992(RA-2014)	150 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1992(RA-2014)	485 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1992(RA-2014)	0.65 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

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Job No.: CTCE/BBMP/RM/W.No.09/CSR.10/159i/SAND-Gradation/2016-17 03.10.2016

TEST REPORT ON GRADATION OF FINE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of Work	:	Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	:	Fine Aggregates
Technical Reference	:	IS : 2386 Part 1 - 1963 RA-2016
Sample Received On	:	01.10.2016
Date of Testing	:	03.10.2016

Total Wt. of Aggregates in gms = **1000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2016)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	93.20	90-100	90-100	90-100	95-100
2.36	74.70	60-95	75-100	85-100	95-100
1.18	55.40	30-70	55-90	75-100	90-100
600 Micron	28.00	15-34	35-59	60-79	80-100
300 Micron	10.80	5-20	8-30	12-40	15-50
150 Micron	3.00	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/RM/W.No.09/CSR.10/159i/AGG/GR/2016-17 I 03.10.2016

TEST REPORT ON GRADATION OF COARSE AGGREGATES

* Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency : **Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of Work : Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference : BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID : Coarse Aggregates (40mm)

Technical Reference : IS : 2386 Part 1 -1963 RA-2016

Sample Received on : 01.10.2016

Date of Testing : 03.10.2016

Total Wt. of Aggregates in gms= **5000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2016)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	98.40	95-100	85-100
20	35.20	30-70	0-20
10	13.70	10-35	0-5
4.75	2.00	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under graded specific limits.

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Job No.: CTCE/BBMP/RM/W.No.09/Pavers/2016-17 03.10.2016

TEST REPORT ON PHYSICAL TESTS OF PAVER BLOCKS

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of work	:	Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Samples ID	:	Paver Blocks
Technical Reference	:	IS 15658-2006
Date of Testing	:	03.10.2016

The results of the tests conducted on the Paver Blocks sample are as follows:

1.THICKNESS:

Sl No	Identification	Thickness, mm	Average thickness, mm
1	PB1	60.15	60.20
2	PB2	60.25	
3	PB3	60.20	

2.COMPRESSIVE STRENGTH:

Sl No	Identification	Load in Kilo-Newton	Cross sectional area, mm2	Compressive strength
1	PB1	875.2	24200	36.17
2	PB2	865.3	24200	35.76
3	PB3	860.4	24200	35.55

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/RM/W.No.09/Steel/2016-17 03.10.2016

TEST REPORT ON REINFORCEMENT STEEL

* Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

* Agency : **Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.

* Name of work : Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.

* Reference : BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016

* Samples ID : 10 mm Bar

Technical Reference : IS: 1786-2008

Date of Testing : 03.10.2016

Sl No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm2	Tensile strength (Ultimate stress) N/mm2	Elongation percent gauge length		
1	10	0.62	510	512	13.10	O.K	O.K

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Job No.: CTCE/BBMP/RM/W.No.09/CSR.10/159i/Kerb Stone/2016-17 03.10.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CORE

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of work	:	Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	:	Kerb Stone
* Grade of Concrete	:	M_{15}
Techinical Reference	:	IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample Received on	:	01.10.2016
Date of Testing	:	03.10.2016

Sl. No	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	77.00	0.389	2572.94	1.54	0.950	24.50	12.48	13.48	14.18	17.73
2	50.00	78.00	0.394	2572.60	1.56	0.952	26.35	13.42	14.49	13.80	17.26
3	50.00	80.00	0.402	2559.21	1.60	0.957	28.25	14.39	15.54	14.87	18.58

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Job No.: CTCE/BBMP/RM/W.No.09/CSR.10/159i/CUBE/2016-17 14.11.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	: **Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of the work	: Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	: BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	: Cement Concrete
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{15}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 14.11.2016

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	17.10.2016	14.11.2016	8.265	372.8	16.57
2	17.10.2016	14.11.2016	8.147	363.5	16.16
3	17.10.2016	14.11.2016	8.365	387.4	17.22

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Job No.: CTCE/BBMP/RM/W.No.09/CSR.10/159i/CUBE/2016-17 16.11.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	: **Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
* Name of the work	: Maintenance of Roads and footpath and buildings in Ward No.09, in Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	: BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	: Drain Concrete
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 16.11.2016

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	19.10.2016	16.11.2016	8.263	486.3	21.61
2	19.10.2016	16.11.2016	8.347	493.9	21.95
3	19.10.2016	16.11.2016	8.415	510.6	22.69

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TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

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* Agency	:	**Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
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* Reference	:	BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	:	Drain Concrete
Technical Reference	:	IS: 516-1959 (Reaffirmed 2008)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	16.11.2016

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	19.10.2016	16.11.2016	8.265	502.6	22.34
2	19.10.2016	16.11.2016	8.496	526.3	23.39
3	19.10.2016	16.11.2016	8.322	517.8	23.01

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* Customer	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	: **Mr. R. Madhusudan,** #830, BEL Layout, Vidyaranyapura, Bangalore – 97.
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* Reference	: BBMP/EE/BTP/WO/346/2015-16 Dated: 30.03.2016
* Sample ID	: Drain Concrete
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 16.11.2016

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	19.10.2016	16.11.2016	8.369	518.6	23.05
2	19.10.2016	16.11.2016	8.158	494.5	21.98
3	19.10.2016	16.11.2016	8.242	503.3	22.37

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